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SURGICAL CASES.

[Communicated for the Boston Medical and Surgical Journal.]

Records of Cases admitted into the Surgical Wards of the West Wing of the Massachusetts General Hospital, under the care of Dr. R. M. HODGES, during the four months preceding Nov. 1, 1863; by S. W. LANGMAID, Surgical House-pupil.

INJURIES OF THE HEAD.

I.—SEPT. 5. Female, aged 18. When 9 years of age fell down two flights of stairs, striking upon her head. Her life was despaired of for many days, but she finally recovered. The scalp was not lacerated at the time of the accident, and no bone was removed or discharged, nor did any sore of the scalp form subsequently to the injury. At the end of a year she had an epileptic fit, and they have recurred ever since, sometimes with intervals of six weeks, again five or six in quick succession. These fits are of a severe character, and affect chiefly the left side of the body. Her intellect has been growing feeble of late, strabismus of the right eye has come on, and she wears a semi-idiotic expression. On right side of head, over parietal protuberance, there is a very considerable depression of the skull. A consultation advised trephining, and the parents feeling how great a burden the patient is to herself and all around her, accept the risk which the operation involves. It was undertaken Sept. 6th. On reflecting the scalp, what appeared to be a depression was found to be a loss of substance, an aperture half an inch in diameter existing in the parietal bone, the edges of which were bevelled down to extreme thinness. An accidental opening in the fibrous membrane which covered this foramen gave issue to a large quantity, probably two or three ounces, of pure, limpid serum. The introduction of a probe detects no irregularity or outgrowth of the bone around the borders of the aperture on the inside. Further operative measures were therefore abandoned. The flow of serum ceased during the afternoon. The next day, Sept. 7th, the patient's condition was apparently improved; she

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looked brighter, and said that her head was relieved from a feeling of tightness and weight which she had long experienced.

8th.—Slight fever; occasional spasms of facial muscles and arm.

9th.—Spasms continue. Wine whey and beef-tea were ordered, as she seemed pale and feeble and inclined to be cold about the extremities.

10th.—No particular change.

12th.—Two convulsions; very drowsy.

13th.—Unconscious; snoring; left arm rigid; pulse 58, small.

14th.—Last evening convulsions continued. Died at two o'clock this A.M. No autopsy permitted. The wound of the scalp had nearly healed.

II.—July 19th. Male, aged 25. On the 25th of last month was struck upon the head by a hoe in the hands of a fellow-laborer; was insensible for an hour afterwards. A sensation of oppression came on with his returning consciousness, and has continued ever since. One week ago he had a "fit"; did not fall, though he was unconscious for a short time. Paralysis of the left arm immediately followed the blow, and until this fit there had been a gradual return of the muscular power; since then there has been no improvement. Yesterday he had a second fit; did not lose his consciousness, but was unable to articulate, and had a choking sensation and spasmody contraction of left arm and leg. Patient is despondent; walks mopingly about ward; his appetite and digestion are good, and his pulse is natural; is able to extend his left arm from the side of his body, but ability to flex the forearm is limited. There is a rectangular cicatrix on right side of head above ear, at the angle of which is an unhealed point discharging pus, and at which probe detects dead bone, none of which, however, is loose enough to be removed. Is put upon vegetable diet, and to have a laxative pill every night. Poultice to wound.

27th.—Had a fit, lasting ten minutes, accompanied by contraction of facial muscles. Retained consciousness throughout, but could not speak.

31st.—Feels better and grows stronger.

Aug. 6th.—Has had no recurrence of his fits, and in a slowly but constantly improving condition of general health is discharged.

31st.—Patient readmitted. The dead bone being loose, it was removed under ether; a large hole was left in the parietal bone, the circumference of which was studded with osteophytic growths projecting inwards; several of these were broken off, one as large as a filbert, and altogether a very large amount of osseous tissue was abstracted.

Sept. 1st and 2d, he had several convulsive attacks, accompanied by a partial loss of consciousness. On the 3d, he had frequent muscular twitchings and several severe paroxysms of cramp in his left leg. From this time he began again to improve, and although very

nervous and continually in dread of the return of the fits, he was sufficiently well to leave the Hospital Sept. 21. His wound was still discharging.

III.—July 22. M., 5. By the fall of a stove, which was being hoisted through the scuttle of a store, this little patient's skull has been fractured, as well as his left leg near the middle, both bones being broken and the tibia protruding through the integuments. The scalp is laid open along the median line from the forehead to the occiput. There exists a fracture of similar extent, with divergent fissures, and a depressed fragment, an inch wide and one and a half inches long, is removed from the anterior portion. The membranes beneath are lacerated, and some of the wounded cerebral tissue protrudes. Is unconscious, pale, and has a feeble pulse and cold extremities. The continued application of ice to the head is directed, and hot water to the feet; wine whey and beef-tea freely.

23d.—Very restless. Still unconscious.

24th.—More quiet. Answers questions.

25th.—Crying all day. Semi-conscious. Stimulants required and given. Impossible to keep the fractured leg in any proper position.

29th.—Condition much the same; hands and face swollen; complexion pale and waxy.

30th.—At the request of the parents, was discharged.

About a month afterwards the child reappeared, having come from East Boston and walked some little distance from the horse-cars to the Hospital. A large granulating surface exists in the site of the wound, and at the bottom of this are several large plates of denuded and necrosed bone, with granulations sprouting up between the fissures which separate them. A fortnight later he returned, and the whole of this dead bone was removed without causing the least suffering. The fractured leg has firmly united, with but little deformity. This patient has not been seen again, but his condition at the last visit was such as to authorize the belief that he has entirely recovered.

Remarks.—The preceding cases illustrate the well-known facts that the gravest accidents not only follow severe injuries of the head, but that sometimes, when these might most be expected, the patient recovers without any untoward symptoms. It is true of the last case, No. III., while remarkable that the child should have even survived the wounds received, the real dangers have not yet had time to show themselves; a year elapsed in Case No. I. before the consequences of the injury, which finally rendered life a burden, began to appear, and they may yet be manifested in that of the little boy. Case No. II., in which a marked nervous element existed, had, notwithstanding, many symptoms too real to clear it from apprehension as to the ultimate issue. Its history while in the Hospital shows well the benefit of rest, quiet, regular and appropriate diet,

and how much may be accomplished by a few weeks of strict and careful regimen. In Case No. I., although death followed the evacuation of the cerebro-spinal fluid, it can hardly be assumed to have been in consequence. It is an interesting fact that whilst the circumstances of its escape place the occurrence very nearly on a par with an experimental evacuation, and isolate from the case the severe lesions which accompany fractures of the vault of the cranium, when a much readier egress is often given to the fluid, it should not have been followed by the great disturbance of the cerebral functions which succeeded its withdrawal in the subjects of Magendie's experiments. The rapidity with which the fluid is regenerated, and the fact that its reproduction restores the nervous centres to their natural state, leads to the inference that death in this case was due to meningeal inflammation set up by the admission of air to the membranes, rather than to the evacuation of the cerebro-spinal fluid.

FRACTURES AND DISLOCATIONS.

Thirty-three cases of fracture were admitted, viz.:—5 of the humerus; 1 of the humerus and both bones of the forearm; 4 of both bones of forearm; 2 of radius; 1 of ribs; 1 of femur and pelvis; 2 of femur; 1 crest of ilium; 16 of leg, viz., 12 of tibia and fibula, 4 of tibia. Of these last, 8 were near the ankle, 3 being instances of Pott's fracture; 3 were above the ankle, but in the lower third, 3 were in the middle, and 2 were in the upper third of the leg.

One dislocation of the head of the humerus into the axilla, and one of the acromial end of the clavicle, were all that were admitted. The latter was from direct violence whilst shackling cars. Unlike the majority of these cases, it was easily retained in position, and at the end of eight days the patient was discharged.

Remarks.—The treatment of these fractures was in no respect unusual. Most of those of the lower extremity were placed in starch or dextrine bandages at the end of a fortnight or three weeks, the latter being preferred from its more easy manipulation, and because it not only dries sooner and is firmer when dry, but is more reliable in damp weather, when starch frequently either refuses to stiffen, or if it does, stiffens in a very imperfect and unsatisfactory manner. Great convenience was often found, especially in oblique fractures of the tibia, from suspending the foot to a cradle by a broad strip of adhesive plaster attached to the sole of the foot, lifting it just enough to clear the heel from the bed or fracture box; it not only keeps the lower fragment of the fracture from tilting up by the weight of the foot, but relieves the heel from the pain caused by pressure and averts the annoying accident of an ulceration, the obstinate character of which was well illustrated in one case, where forty-five days were required to heal over an apparently insignificant sore, when but thirty-nine were necessary to consolidate the fracture which it followed. The great length of time re-

quired for the consolidation of oblique fractures was shown in three cases of broken leg, which, although firm enough to be discharged from the Hospital, still admitted of some motion at the end of seventy-seven, seventy-four and forty-nine days respectively. In two of the fractures of the thigh the only treatment adopted consisted in extension by weights from adhesive straps carried up the sides of the limb as high as the seat of fracture, compressing splints around the thigh itself, and counter-extension by means of the weight of the body, the lower part of the bed being lifted six inches from the floor by placing its two legs in wooden cups turned for this purpose. The result was entirely satisfactory in one of the cases; the other terminated fatally on the seventh day, the pelvis being fractured and the urethra ruptured. The third case of fracture of the thigh was a compound, comminuted one, the bone having protruded on the under surface of the limb. This was suspended in a "Smith's anterior splint" for convenience of dressing, as the wound, which was largely dilated, suppurated profusely. Eighteen days after the receipt of the injury, during the adjustment of the splint, which had slipped, sudden hemorrhage occurred, and before it could be arrested the patient had lost so much blood that he died within an hour. It was ascertained that a sharp fragment of bone had pressed upon and so nearly ulcerated through the popliteal vein, that a slight movement had sufficed to cause its rupture.

DISEASES OF JOINTS.

Hip Disease.—I.—M., 8 $\frac{1}{2}$. First entered Hospital May 22d, 1863, and was discharged June 30th, greatly relieved. July 14th, re-enters much as on first admission. Pain in hip and sometimes in knee. Flexion or rotation cause great suffering. Nates flattened; limb elongated; lies on right side with thigh partially flexed; appetite small, pulse rapid and feeble. Moderate extension was applied by means of adhesive plasters attached to the sides of the leg from above the knee, and from which traction was made by a cord passing over a pulley at the end of the bed, to which a weight was appended.

Aug. 3d.—Tenderness so much less that Sayre's splint was applied.

Aug. 5th.—Walks in the garden without stick or crutch, and without pain.

Aug. 22d.—Discharged, and when seen a month afterwards, patient walked perfectly well, was free from pain, and in excellent general health. Still wears the splint.

II.—M., 19. Hip disease of only two months' standing. Shortening at least two inches. Walks only with crutches. Some pain on motion, but not commensurate with the amount of constitutional disturbance present. Pulse very small and rapid. Cheeks flushed. Frequent attacks of diarrhoea, increasing emaciation. On entrance, Aug. 15th, extension was applied with the effect of gradually bringing the limb down. Sayre's splint was applied Oct. 1st, and on

the 6th, patient was discharged, walking quite well, and with the affected limb nearly as long as the other. A month after his discharge, being able to walk without assistance, his splint required fresh adhesive straps; those which were then applied produced so much irritation as to oblige the removal of the apparatus. His symptoms immediately returned, and he re-entered the Hospital Nov. 5th.

III.—M., 10. Hip disease of two years standing. Entered Sept. 17th, in a condition of great suffering from pain in the joint; the limb is very much drawn up, and extremely sensitive. Extension by a weight of only two pounds gave relief to his symptoms in 24 hours. Sayre's splint applied Oct. 13th. Walks about with crutches on the 18th, and Nov. 1st begins to go a little without them.

IV.—F., 23. Hip disease when three years old, resulting in a partial ankylosis and a shortening of five inches. Two months before entrance, Sept. 25th, wrenched her hip by a fall. Starting pains and severe aching in both hip and knee followed, and gradually obliged her to give up work. Rest and extension with a three-pound weight at once relieved all her symptoms.

Oct. 31st.—Although still in the Hospital, she may be considered as well and ready to be discharged.

Diseases of Knee-joint.—I.—M., 5. When 1½ years old, fell and struck his knee. Has suffered ever since, every now and then being laid up by pain in the knee, which has gradually enlarged and become deformed, assuming the characteristic shape of chronic disease of the joint. Five weeks ago the limb began to contract and the knee to grow more and more painful. On entrance, July 6th, the leg is flexed to nearly a right angle, the joint is sensitive to the slightest pressure, and there is considerable constitutional disturbance. Extension by a weight of six pounds, the foot of the bed being raised six inches, caused great relief, and was increased two pounds on the 13th.

Aug. 1st.—The limb was straight enough to permit a splint being applied to the ham. He was still kept at rest, but carried out doors every day.

Oct. 15th.—A dextrine bandage was substituted for the splint, and he was allowed to walk about a little. On the 26th he was discharged, well.

II.—F., 4. Disease of knee one year. Four weeks since, the leg began to contract and the knee to grow more painful. Tibia displaced backwards; patella sunk between the enlarged condyles. No effusion of fluid in the joint. Leg at nearly a right angle with the femur.

Aug. 17th.—Extension by a small weight.

Sept. 23d.—Straight enough to allow application of splint.

Oct. 26th.—Dextrine bandage applied.

Nov. 1st.—Although not yet discharged, may be considered well.

III.—M., 19. Chronic synovitis of knee of seven months stand-

ing. Treated by rest, tinct. of iodine, compressed sponge, and discharged well at the end of thirty days, wearing a dextrine bandage.

One other case of chronic synovitis and two of diseased wrist-joint were under treatment, the former being discharged well and the latter relieved. The treatment generally pursued is illustrated in the cases briefly detailed.

A conductor on a horse railroad entered with inflammation of the wrist-joint, coming on without known cause. He had had gonorrhœa for four weeks, but, although the symptoms were much like those of rheumatism, no other joint was affected. Under rest and poultices the symptoms disappeared, and at the end of five days he was discharged.

A young woman, aged 28, entered with an enlarged bursa over the patella, which had been incised with a small crucial incision outside the Hospital. At the end of a fortnight she was able to go out well.

Remarks.—Although none of the cases of hip disease had reached the advanced stage so often seen among out-patients, and when its treatment offers so little encouragement, in all of them the constitution had begun to sympathize with the local trouble, and the patients were beginning to show the cachectic and enfeebled condition due to long-continued pain and in-door confinement. The great relief which so promptly followed extension in every case was very satisfactory, and showed itself at once in the changed countenances of the patients. Inasmuch as the subcutaneous division of the muscles about the hip causes, in many cases of advanced coxalgia, a most marked change for the better, it is probable that extension acts similarly, by arresting their constant and irritating action on the inflamed articulation, and not by separating the two surfaces of the joint, as was once supposed; this could only be effected by a very great degree of traction, if indeed it would be practicable at all. The result of extension is also shown to be followed by as favorable results in certain stages of disease of the knee as of the hip-joint.

The beneficial effects of pressure with compressed sponge in promoting the absorption of effused lymph or synovial fluid, are continually experienced in the Hospital. A sheet of sponge put under a hydraulic press and squeezed down to a thickness of three-fourths of an inch, bound on to a joint whilst dry and then wetted, produces by its expansion, as it absorbs the water, a powerful pressure of an equal and continuous character, extremely efficient in reducing the induration which accompanies many old cases of chronic synovial disease, and acting rapidly on the effusion of fluid within the capsule of the articulation.

AMPUTATIONS.

Of Upper Extremity.—I.—M., 13. Gun-shot wound of humerus. Amputation close to head of bone. Discharged forty days after operation. Wound entirely healed.

II.—F., 3. Horse-car accident. Amputation of arm close to head of humerus. Discharged twenty-seven days after operation. Wound entirely healed.

III.—M., 21. Fracture of elbow-joint and laceration of muscles of arm from discharge of fowling-piece loaded with small shot. Amputation just above middle of humerus. Discharged thirty-one days after operation. Wound entirely healed.

IV.—M., 45. Amputation of thumb, for injury, at carpo-metacarpal articulation. Operation followed by deep cellular inflammation up the forearm. Parts healed and inflammation subsided thirty days after amputation.

V.—M., 22. Amputation of thumb, for injury, at middle of proximal phalanx. Discharged at end of thirty-five days. Wound entirely healed.

VI.—M., 14. Amputation of thumb, for gun-shot injury, at middle of proximal phalanx. Discharged at end of seventeen days. Wound nearly healed.

VII.—M., 42. Amputation of distal phalanges of index and middle fingers, for injury. Discharged at end of eighteen days. Wounds entirely healed.

VIII.—M., 38. Amputation of index finger, at metacarpo-phalangeal articulation, for disease of bone following a felon. Discharged at end of fourteen days. Wound entirely healed.

Lower Extremity. Double Amputations.—IX.—M., 32. Rail-road accident. Amputation of right thigh at upper third; of leg, just below knee. Wounds nearly healed, forty days after operation.

X.—M., 54. Legs crushed by a truck. Amputation of right thigh at middle. Disarticulation of left foot at the tarso-metatarsal joints. Death from exhaustion, eleven days after operation.

XI.—M., 24. Rail-road accident. Amputation of both legs just below the knee. Death from shock, twelve hours after operation.

Single Amputations.—XII.—M., 28. Gun-shot wound of knee-joint at battle of Gettysburg. Amputation of thigh in lower third, twenty-three days after injury. Death, apparently from pyæmia, six days after operation.

XIII.—M., 26. Compound fracture. Amputation of leg four inches below knee. Discharged thirty-five days after operation. Wound nearly healed.

XIV.—M., 58. Rail-road accident. Amputation of leg just below knee. Removed by friends at end of eight days.

XV.—M., 47. Compound fracture. Amputation of leg just below knee. Under treatment.

In connection with these cases may be mentioned one of gun-shot wound, in which the metacarpo-phalangeal articulation of the thumb was excised; one of crushing of the thumb, in coupling cars, where the shaft of the proximal phalanx was removed; and one, where the thumb was crushed in the machinery of a steam engine,

in which the whole metacarpal bone and half the proximal phalanx were removed. All these cases resulted admirably, healed rapidly, and left very useful substitutes for a perfect thumb.

Remarks.—With a single exception (Case No. I.), all the large amputations were performed by the circular method. Case XII. was that of a Lieut. in the 11th Mass. Vols., who, fourteen days before his admission, was wounded in the inside of the thigh, just above the knee, by a Minié bullet; no wound of exit. The second day after his entrance, two free incisions were made along the outside of the knee, giving vent to a large amount of pus. The operation revealed a total disorganization of the joint, necrosis of the bones and separation of the internal condyle; this was loose and was removed. He had had diarrhoea ever since the injury. Nine days after admission, his condition seemed to warrant amputation, and, after consultation, it was performed, with the loss of very little blood. On the third and fourth days from the operation he had severe chills, and then complained of great oppression in breathing; his skin became jaundiced, his diarrhoea continued, delirium set in, and he gradually failed in strength and died six days after the amputation. On examining the limb after its removal, the bullet was found lying in the joint; the lower extremity of the femur was much comminuted and the patella fractured; the soft parts were extensively infiltrated with pus, and the cartilage of the articulation ulcerated and detached at various points. The very grave nature of the accidents, in all the cases of amputation of the lower extremity, explains the mortality which followed them.

[To be continued.]

CANCRUM ORIS.

BY S. L. SPRAGUE, M.D.

[Read before the Boston Society of Medical Observation, and communicated for the Boston Medical and Surgical Journal.]

ROBERT BRECKHEIMER, 5th Ky. Reg't, Co. B, 21 years of age, is a native of Germany. He lives in Louisville, Ky. He was taken prisoner at Chattanooga on the 18th of June, 1862, and sent to Macon, Ga., where he was a prisoner until the 15th of October, four months. He was then sent North, and arrived with ninety-nine other prisoners at Trinity Hospital, Washington, on the 21st October, 1862. He was fed at Macon the same as the other prisoners, on bacon and corn meal, which last they cooked themselves. They had no vegetables, but very little salt, and no coffee or sugar. His condition on entering the Hospital was wretched in the extreme. He was debilitated so that he could not walk, emaciated to a skeleton. He had chronic and exhausting diarrhoea. His legs and feet were oedematous and covered with spots of purpura. He was covered with vermin, and his head was sore and alive with pediculi.

He, with several others, was put into my ward. A warm bath, clean shirt and comfortable bed improved his condition very much. He complained of a sore mouth, which he had one week before he left Macon. His cheek was inflamed and swollen, and his breath very offensive. A warm linseed poultice was ordered for him that evening. The next morning there was a slough of the cheek, and a large hole was made, exposing the jaw and teeth of the left side. I had the wound washed with a solution of chloride of soda, and gave him, internally, sulphate of quinine, tincture of chloride of iron, and chlorate of potassa.

Nov. 2d.—Ten days after his arrival, at the Hospital, he was much improved. The diarrhea was somewhat checked by astringents. His appetite was good, and potatoes, onions, stewed apples, &c., were given to him freely.

The wound was increasing, so that now the mouth at the left angle was but slightly connected by a strip of flesh. The wound was two inches square and quite painful.

Dec. 1st.—The edges of the wound are now healed, and it has ceased to extend further. The opening caused by the slough has extended into the mouth, so that the mouth is continuous with the wound. Ten days ago he was quite free from pain, but recently pain has returned, and is constant. The teeth of the jaw which are exposed are loose. The jaw is bare and of a dark color.

January.—The wound was healed, leaving a large opening which exposed the jaw. His appetite was good, and he had gained flesh; was able to walk about. He wore a bandage over the opening to hide the deformity, and also to aid him in eating and drinking.

He obtained his discharge about the 15th, and left the Hospital.

As far as I could ascertain, he had not been sick at Macon, and had taken no medicine, except for the diarrhea; and therefore this disease, *cancrum oris*, cannot be attributed to mercury.

Gangrene originating from the same cause, a weak and vitiated system, occurred in the ward above me, which came under my notice. This was gangrene of the foot; there was an elimination of the eschar, the bones of the foot separated, and there was spontaneous amputation of the foot, known as Chopart's operation. The foot was left hanging by the tendons which were cut off. This man was in a low condition, and did not recover. There were two other cases of gangrene of the feet which came under my notice, each having gangrene of both feet involving the whole to the ankle-joint. The line of demarcation formed, and the legs were amputated just above the ankle, and the patients, when last I heard, were in a fair way of recovery. These cases of the feet were spontaneous gangrene of the extremities, as classified by Nélaton.

ON PHENIC ACID.

ITS ACTION ON VEGETABLES, ANIMALS, FERMENTS, POISONS, VIRUS, MIASMAS,
AND ITS APPLICATIONS TO HYGIENE, TO THERAPEUTICS, AND TO
THE ANATOMICAL AND INDUSTRIAL SCIENCES.

By M. LE DOCTEUR JULES LEMAIRE.

As the subject treated of in these papers is of considerable practical importance, we shall present our readers with a short abstract of them.

Phenic acid ($C_6H_5O_2$) was discovered in 1834 by Runge, who has given it the name of carbolic acid. Laurent, who studied this body, and described many of its combinations, designates it under the name of phenic and hydrate of phenyle, because he objects to place it among the acids. Gerhardt gave it the name of phenol. It has also received the names of phenic alcohol, of spyrol, and of silicone. [In this country the acid is best known in trade as carbolic acid.]

It has been formed synthetically by M. Berthelot, by passing alcoholic or acetic acid vapors through a porcelain tube heated to redness. The acid is also obtained in the dry distillation of benzoin, quinic acid, the resin of xanthorrea hastilis, castoreum, and chromate of pelosine. Gerhardt has obtained it from salicylic acid by the action of lime or baryta. Stædeler has found that the urine of man, the horse and cow contain it in quantities easily perceptible. It exists also in commercial creasote; but it is from the oil from gas tar, which contains it in considerable quantity, that it is obtained.

Preparation.—The oil from coal tar is submitted to fractional distillation. The part which passes over between 160° and 190° is treated with a solution of hot saturated caustic potash and some powdered potash. A mass of crystals is thus obtained, which may be separated by decantation of the fluid.

When this mass is dissolved in water the solution separates into two layers, one light and oily, the other heavy and watery. The latter is separated and treated with hydrochloric acid, which sets free the carbolic acid. To obtain it pure, it must be digested with fused chloride of calcium and re-distilled once or twice. After several rectifications, and by cooling slowly, it can be obtained in a solid colorless crystalline mass.

The pure acid has an odor resembling creasote; the specific gravity — 1.065. It burns with a reddish flame; boils between 187° and 188° . It does not redden litmus, only making an oily stain on the paper. It is soluble to some extent in water, but is very soluble in alcohol, ether, and acetic acid, as well as in glycerine and the fixed and volatile oils.

The pure acid acts energetically on the skin. A weak aqueous solution coagulates albumen and the blood, and acts as a strong

antiseptic. Putrid meat and fish, faecal matters and fermented urine instantly lose their disgusting odor, when immersed in or treated with the solution.

Chemically, phenic acid is a weak acid. It combines with metallic oxides, but the salts have little stability; carbonic acid decomposes them. Those with an alkaline base have always an alkaline reaction.

In consequence of the supposed little solubility of carbolic acid in water, it has hitherto been chiefly employed mixed with powders, as in the case of Smith and McDougall's disinfecting powder; but the author of these papers has by careful experiments determined that the pure acid is sufficiently soluble in water for the solution to possess the power of coagulating albumen, of arresting or preventing spontaneous fermentation, and consequently of destroying infection. The saturated solution acts also on plants and the lower animals as a violent poison, though containing but five per cent. of the acid. The solubility of the acid may be considerably increased by the addition of from five to ten per cent. of alcohol or of acetic acid.

From the experiments which the author has made on the action of phenic acid on plants and animals, it appears that a very weak solution will instantly destroy the lowest forms of animal and vegetable life. The juices of vegetables are prevented from becoming mouldy by the addition of the smallest quantity of the acid. Herbs and shrubs watered by a stronger solution rapidly die.

The microscopic beings concerned in the production of putrefactive fermentation are as quickly destroyed by a weak solution, and the putrefaction is completely arrested. Parasitic and earth-worms also are easily killed by a solution containing one half per cent., or by exposure to air containing but a small proportion of the acid. An injection of water containing one half per cent. of the acid brought away from a child a large quantity of *ascarides lumbricoides*, all dead. A stronger solution kills the eggs of ants and earwigs, and larvæ of butterflies, caterpillars, &c.

The author has studied the action of the acid on the mammalia with mice, guinea-pigs, dogs and horses, as well as men.

Action on the Human Skin.—Immediately after the application of a thin coating of the pure acid, a sharp smarting is felt, which lasts about an hour. The epidermis becomes wrinkled, and in a short time the formation of a white body may be remarked wherever the acid has touched. This white coloration results from the action of the acid on albumen; it disappears by degrees, and is replaced by some congestion, which lasts about twenty days. This congestion presents all the characters of an intense inflammation, being attended with redness, heat, and swelling. If a small piece of the epidermis (which appears raised as in a blister) be stripped off, no serum escapes. The epidermis becomes detached by degrees, and

when the exfoliation is complete a brown spot remains, which testifies for a long time to the energetic action of the acid. After a number of experiments on his own arms, and the arms of his friends, M. Lemaire assures us that the smarting never lasts longer than an hour. The redness of the skin endures about twenty days, but the inflammation never extends beyond the part to which the acid has been applied.

Action on the Mucous Membrane.—The action of the pure acid on the mucous membrane is, of course, analogous to its action on the skin; acute smarting, shrivelling up of the epithelium, and a milky coloration being observed. The smarting does not last so long as on the skin, especially on such membranes as produce an abundant secretion; and the epithelium quickly returns to its normal condition.

Action on the Respiratory Organs.—From experiments on mice and horses, the author concludes that the higher animals may breathe the diluted vapor of the acid for a long time without discomfort or danger.

Mode of Action.—The general fact resulting from the author's experiments is that phenic acid acts on plants and lower animals as a violent poison.

When the action of the acid on a semi-transparent leaf is examined, it is easy to prove that it coagulates albumen, and that the parenchyma and epiderm are contracted. This explains how it is that microphytes and microzoons die so quickly in its presence. All animals with a naked skin, and those which live in the water, die sooner than those which live in the air and have a solid envelope. The difference appears to result from the power of absorption, which is much greater in the former than the latter.

When frogs are placed in a saturated solution (5 per cent.) of the acid, the skin shrivels and becomes milky from the coagulation of the albumen. The branchiae of fishes also become white. This coagulation of albumen led the author to suppose that the death of the animals resulted from the coagulation of their blood. To verify this supposition, he examined, under the microscope, the action of the acid on the branchiae of the larvae of salamanders, in which the circulation of the blood is easily seen. He then observed that, although the solution arrested the circulation instantaneously, it altered neither the form nor appearance of the blood globules. All the change consisted in their immobility. When the blood is coagulated by mineral acids the form of the globules is changed. With carboxylic acid nothing of the kind takes place. Besides this, a post-mortem examination of a dog and horse proved that the blood was not coagulated. Phenic acid, then, does not kill by producing coagulation of the blood! Its action on the blood globules, however, leads M. Lemaire to think that these globules are living beings.

Insects exposed to a weak dose of the acid become asphyxiated, but they soon recover in pure air.

When a gramme or two dissolved in water are administered to a dog, the animal falls as if struck with lightning, but soon recovers again. The sudden fall the author ascribes to violent pain, and the rapidity with which it is absorbed and carried to the nervous centres. It is on the nervous system, then, that phenic acid principally acts.—*Chemical News.*

Bibliographical Notices.

The Physician's Handbook of Practice for 1864. By WILLIAM ELMER, M.D. New York : W. A. Townsend, publisher.

We have carried this Visiting List for several years, and have found it in many respects better adapted to the wants of the practitioner than any other we have seen. The list of remedial agents, combining as it does in a compact form nearly all the preparations ever employed in medicine, is particularly valuable, affording to its bearer opportune information concerning the dose of any drug he may wish to prescribe, which may have escaped his memory. We are pleased to see that there has been added in this edition an index of the common names of the articles of the *materia medica*, for in previous years certain important agents have been arranged according to their little used generic names, so that one wishing to refer to ipecac. or belladonna, for instance, might think they were omitted unless it had occurred to him to look for cephaelis and atropa. We cannot help thinking, however, that the list of agents given, which amounts to 689, and bears too close a resemblance to the *materia medica* of some botanical doctor, might be reduced with advantage one half at least in number. What is wanted in a pocket-book is simply what is well known, not matter to be tested by experiment.

With the exception of the substitution of another "ready method" in asphyxia for that of Marshall Hall, the contents of the volume remain the same as in former years. We heartily recommend it to every practising physician.

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

BOSTON: THURSDAY, DECEMBER 3, 1863.

MENTAL HYGIENE.*—"Canst thou not minister to a mind diseased?" is a question which sooner or later is sure to be addressed to every physician of extended experience; and it is a matter of sincere satisfaction that through the unwearied and philanthropic efforts of the students of mental disorder at the present day he is enabled to give so often a much more encouraging reply than that which pro-

* Mental Hygiene. By I. Ray, M.D. Boston: Ticknor & Fields. 1863.

voked the impatient exclamation of the disappointed murderer and usurper, "throw physic to the dogs, I'll none of it!" In no department of professional research have the labors of our brethren been crowned with a richer harvest than in that which has for its study the prevention and cure of diseases of the mind. To no class of physicians is the community under greater obligation than to the self-denying men who assume the responsible position of head of our asylums for the treatment of this distressing class of disorders. The position is one as trying as it is responsible, demanding rare qualities of mind and heart in the man who assumes its burdens. Practically familiar as we all are with the blessed results which so often flow from their agency, we are always prepared to listen with interest and respect to any words of warning or advice which may fall from their lips, touching the dread maladies which are the subject of their constant observation and care. It is with these feelings that we have taken up Dr. Ray's modest little book, and have found it so full of interest and practical wisdom that we hardly knew how to lay it down until we had read it from beginning to end. It is not offered by the author as a complete system of Mental Hygiene; it is only intended "to expose the mischievous effects of many practices and customs prevalent in modern society, and to present some practical suggestions relative to the attainment of mental soundness and vigor." Standing aloof, as it were, from the busy whirl of our social life, the author can look about him with a philosophic calmness, and detect the peculiar tendencies and subtle influences which are at work to undermine the delicate organization of the human intellect, so that he can speak with an authority almost oracular of their baneful influence. His words of warning are addressed quite as much to the community at large as to the professional reader, and well will it be if they gain respectful audience. Like all great truths, such warnings must be uttered over and over again by different mouths, as successive generations of listeners come upon the stage, constantly bringing forward those to hear to whom they come with all the freshness of novelty. We all know how much depends upon the manner in which a truth is enunciated, to gain for it a hearing, so that we are almost tempted at times to exalt the manner at least to a level with the matter. In the treatise before us we find a happy illustration of the truth of this. The author lays before his readers the thoroughly established facts of Medical Psychology in such an attractive way, that entire conviction reaches where the same truth in a less engaging form would have had but little chance of being heard.

The work before us is divided into five chapters, on Mental Hygiene, as affected by Cerebral Conditions—by Physical Influences—by Mental Conditions and Influences—by the Practices of the Times, and by Tendency to Disease.

The first chapter, on the effect of cerebral conditions upon the mind, treats the subject, so to speak, in its organic relations. The author discusses with much wisdom the relations of the mind to the brain, its organ, avoiding the extremes of materialism on the one hand and extravagant theories of the independence of the intellect upon bodily organization on the other.

"As the music is in the player," he says, "not in the instrument he uses, so is the brain the material organ by which the mind is enabled to exercise its pow-

ers. On the other hand, among men whose views on philosophical subjects are determined more by the testimony of sense than any subtle deductions of reason, there are some who regard the mind as entirely a function of the brain. Without the brain there is, and there can be, no mind. This question, as already hinted, derives its importance chiefly from its theological bearings. If the mind is an original, independent principle having only an incidental connection with the body, then, it is supposed, it may, and indeed must exist after the dissolution of the body. But, if it is merely a phenomenon resulting from the play of organic elements, it must necessarily perish with the organism from which it sprung. It is not quite certain that either of these views will warrant the inference that is drawn from it. Although we may admit the independent existence of the mind, there must be other reasons, I apprehend, for believing it to be immortal; and, though we admit that the mind is a product of vital movements, it does not necessarily follow that there can be no conscious existence after the component parts of the animal mechanism are dispersed. We are not to measure the resources of Almighty Power by our own feeble conceptions, nor to suppose that a fact is impossible merely because some of its conditions are beyond our comprehension."

The close connection of the brain with the mind, and the various influences which act upon the latter through the physical condition of the former, are considered by the author; and, believing in the possibility of hereditary transmission of mental qualities, Dr. Ray does not believe in the indefinite progressive development of any special traits, but thinks the world will look in vain for any higher types of mind than it has already seen. Nevertheless, he does not undervalue the great importance of studying these laws of hereditary transmission, and of acting under their guidance. In reflecting upon them he remarks as follows:—

"Now, what we seek for as the proper result and aim of mental cultivation is, not particular endowment that may be transmitted from one generation to another, but a large range of capacity, great facility of achievement, and great power of endurance. That these qualities may be rendered permanent by a faithful compliance with the laws of breeding, there can scarcely be a doubt; but this, it must be observed, is something very far short of indefinite development. We have no reason to suppose that, by any possible scheme of training and breeding, finer specimens of the race can be obtained than Pericles and Alcibiades; but we are warranted in believing that by this means individuals of distinguished general excellence would be far more common. If it be true, then, that, in the various stages of its progress, the mind, like the body, is under the government of inflexible laws, it follows that these laws should be thoroughly understood, in order to obtain the highest possible degree of mental efficiency. To show exactly what they are, to exhibit the consequences that flow from obeying or disobeying them, is the essential object of Mental Hygiene, which may be defined as the art of preserving the health of the mind against all the incidents and influences calculated to deteriorate its qualities, impair its energies, or derange its movements. The management of the bodily powers in regard to exercise, rest, food, clothing and climate; the laws of breeding, the government of the passions, the sympathy with current emotions and opinions, the discipline of the intellect—all come within the province of mental hygiene."

Believing fully in the power of such agencies in shaping the mental development, after considering the subject of hereditary transmission, the author utters the following earnest words of warning.

"To those who are yet to form the most important of all connections in life, the facts here stated speak in tones of solemn admonition, warning them, by all their hopes of domestic happiness, against disregarding a law which carries with it such fearful penalties. The highest mental and personal accomplishments will prove to be no compensation for the evil; nor will they furnish any excuse for compromising the welfare of those who derive from us their existence. None but

they who have a professional acquaintance with the subject can conceive of the amount of wretchedness in the world produced by this single cause. None can adequately estimate the suffering, the privation, the ruined hopes, the crushed affections, the blighted prospects, that may be fairly numbered among its effects."

In reply to those who do not accept the doctrine of hereditary transmission, Dr. Ray says:—

"Against the doctrine of the hereditary character of some diseases, it is objected that the legitimate effect of such an organic law would be to deteriorate the human constitution, until every trace of its original stamina shall have disappeared. Of course, the same disease is often seen in both parent and child, but this is regarded as only a casual coincidence. This objection is founded upon a very incorrect idea of the laws of hereditary transmission, as might be inferred from the statement at the close of the last paragraph. The transmission of disease is modified by the same class of agencies as the transmission of feature, or temperament, or complexion. We have no more right to expect that the insanity, or scrofula, or hare-lip of the parent should be transmitted to every one of his children, than we have to expect that a prominent chin, or a large frame, or a dark complexion should be thus transmitted. The tendency, already spoken of, to regain the normal type after the most considerable deviations, is even more obvious in the case of disease and anomalous formation than in that of ordinary peculiarities. Besides, we are to recollect that it is not necessarily the disease which is transmitted, but only the predisposition to disease, and this, owing to some fortunate conjunction of circumstances, may never be developed into overt disease. Two brothers, for instance, may have inherited a tendency to insanity. One is exposed to circumstances that try the mental energies beyond the power of endurance, and he becomes insane. The other pursues the voyage of life on a tranquil sea, with favoring gales, and thus avoids altogether the impending blow. True, instances where the disease of the child has apparently been derived from the parent, may be perhaps outnumbered by those where there has obviously been no such transmission. But this would not help the objection, unless we alleged that the diseases in question had no other origin than that of hereditary transmission. They may be derived from the parent, or from agencies that supervened subsequent to birth. These two different orders of fact are not incompatible, as all the analogies of nature show. To deny the hereditary character of some diseases, merely because they are not always hereditary, is no better philosophy than it would be to believe that scarlatina, typhus, measles, glanders, are never contagious, because by the side of cases which seem to have originated in contagion are many that cannot be traced to this cause."

The author recognizes the hereditary taint by signs which do not always receive their just interpretation.

"The current philosophy," he says, "can recognize the evidence of transmission in no shape less demonstrative than delusion or raving. Contrary to all analogy and contrary to all fact, it supposes that the hereditary affection must appear in the offspring in precisely the same degree of intensity which it had in the parent. If the son is stricken down with raving mania, like his father before him, then the relation of cause and effect is obvious enough; but if, on the contrary, the former exhibits only extraordinary outbreaks of passion, remarkable inequalities of spirit and disposition, irrelevant and inappropriate conduct, strange and unaccountable impulses, nothing of this kind is charged to the parental infirmity. Such views are not warranted by the present state of our knowledge respecting the hereditary transmission of disease."

The questions of the transmissibility of mental peculiarities from parent to offspring, and the supposed deterioration of the offspring of intermarriage between blood relations, both of which had got to be generally received as settled questions by the world at large, have been of late re-opened with considerable earnestness by those who be-

lieve in neither. Our author, as might be expected, does not go with them. Of the latter of these questions, he says:—

"A not infrequent cause of mental deterioration is the intermarriage of blood relations. The great physiological law, that like produces like, depends upon this condition, that the parents shall not be nearly allied by blood. In the domestic animals, neglect of this condition is soon followed by deterioration, and if continued through several generations, the original good qualities of the breed disappear altogether. In man this effect is less obvious, parties often escaping any apparent penalty, even when the law is violated in two successive generations. But it is common enough and severe enough to render infractions of the law fearfully hazardous. Its existence has been denied on the strength of some limited statistics, but the stern facts on the subject are too numerous to be accidental, and it must be our own fault if we do not heed the lesson which they teach. Because the physical qualities of the parents are occasionally too prominent and too well established to be materially vitiated by a single infringement of the law, and the first impression is not enforced and reduplicated by repetitions of the infringement, men are disposed to believe that they have committed no transgression!"

"Within a few years past, the physiological effects upon the offspring, of marriages in consanguinity, have been carefully investigated by Devay, Perrin, Ménière, and others, in France, and Bemiss and Howe in this country. These inquiries show, among these effects, an extraordinary proportion of disease and imperfection in the shape of insanity, idiocy, epilepsy, blindness, deaf-mutism and sterility. From 24 to 30 per cent. of all the pupils in the institutions of France for deaf mutes are the offspring of such marriages, and many of them left a deaf mute brother or sister at home. Dr. Howe collected the statistics of seventeen marriages in consanguinity, from which it appears that of the ninety-five children which proceeded from them, forty-four were idiots, twelve scrofulous and delicate, one deaf, and one a dwarf. Dr. Bemiss has collected the results of eight hundred and thirty-three consanguineous marriages, reported by himself and others, from which proceeded thirty-nine hundred and forty-two children. Of these, one hundred and forty-five were deaf mutes, eighty-five blind, three hundred and eight idiotic, thirty-eight insane, sixty epileptic, three hundred scrofulous, ninety-eight deformed, and one hundred defective in one way or another.

"In persons of a feeble capacity, and especially such as have some tendency to disease, the evil in question is more likely to follow; and cases of this kind are not rare in the experience of those much conversant with mental disorders."

Surely such statistics as those above quoted are unanswerable. In the remainder of this chapter the author illustrates his position by reference to the statistics of insanity in our own New England communities. He shows also what other agencies are at work to undermine the mental vigor of our people, and on the other hand he dwells upon the vast importance of the *corpus sanum* to the *mens sana*, touching upon many of the defects in our social system which are working an evil of fearful magnitude, of which his professional experience gives him a right to speak in a tone of authoritative warning. Our limits compel us to defer our notice of the remainder of this interesting volume to a future occasion.

THE following extract, from the *New York World*, contains so much good sense that we publish it entire:—

"THE EVENING EXCHANGE.—Another great step has been taken in the progress of the age. An 'Evening Exchange' has been opened in the heart of the handsomest quarter of the city, to which, after a hastily snatched dinner, crowds of brokers and speculators eagerly hurry, there to resume the transactions of the day and to anticipate those of the morrow. How long it will be before a 'Sunday Ex-

change' will be established for the purpose of saving to Mammon the invaluable time now wasted, or supposed to be wasted, on the worship of a less palpable divinity, we cannot say; but events move rapidly in these electric days, and the desirable consummation cannot be long delayed.

"When one reflects, indeed, upon the number of hours which must be consumed in the condition of sleep; upon the wear and tear of noble faculties in the emotions of friendship and under the stress of affection; upon the monstrous expense of breath and brain which men who might be selling 'Erie' or buying 'Harlem' are put to in exchanging opinions upon subjects literary, political, moral, artistic, or religious, it is impossible not to be amazed at the vast field of speculation which still remains to be tilled. Vast as it is, however, the energy of our people will soon bring it all under cultivation. The time is not far distant when all the able-bodied male population of this city, not engaged in the vulgar labors by which mere life is supported and carried on, will neither think of, believe in, hope for, nor pray to, any god but the Ormuzd of gold or the Ahriman of greenbacks. How delightful will then be the domestic fireside! Liberated from all control, the young idea will shoot as wildly as it pleases in all imaginable directions. Reduced to these simple functions of the nurse and the housekeeper which so be seem her retiring nature, the wife will abdicate entirely the preposterous notion of sharing her husband's society, lightening his cares, or partaking in his pleasures. The jargon of Wall street will constitute the only language of the dinner-table and the club; the share-list will take the place of learning and genius, of satire and of song; science will confine itself to taking observations of *Ursa Major*, and wit delight itself in bulls alone. It is possible, certainly, that, in our progress towards this true 'golden age,' individuals, as the poet hath it, 'may wither' and old ideas fade from the checkered scene. We may expect a large development of sporadic lunacy; a considerable accession to the annals of financial crime; possibly a few murders or suicides, such as give zest to the history of Frascati's or Crockford's; certainly an immense number of interesting family scandals, a general loosening of the bonds of honor and honesty, a more profound demoralization, in short, of society in public and in private life.

"But it is ridiculous to carp at the incidents of progress. There can be no doubt that man came into this world exclusively for the purpose of making money. No other animal ever deals in that article, excepting, indeed, an occasional ring-tailed monkey, elevated from his natural place in the scale of animated beings by familiar association with a squinting Savoyard or an odiferous and organ-grinding Italian. But not even the monkey has ever risen to the point at which a handful of greenbacks can outvie the charms of home, love, repose and self-respect. The 'Evening Exchange' is a final argument of the supremacy of man, not alone over the lower creation, but over his own instincts, passions, traditions and beliefs."

OFFICERS OF THE VERMONT MEDICAL SOCIETY.—President, P. D. Bradford; Vice President, O. F. Fassett; Recording Secretary, J. S. Richmond; Corresponding Secretary, D. R. Storey; Librarian and Treasurer, Charles Clark; Executive Committee, G. B. Bullard, S. Putnam,

E. F. Upham; Delegates to Burlington Medical College, J. M. Stiles, E. A. Knight; Delegates to New Hampshire Medical Society, E. A. Knight, C. A. Perry; Delegates to New York Medical Society, H. Stevens, W. McCollum; Delegates to Rhode Island Medical Society, G. B. Bullard, W. M. Huntington; Delegates to Connecticut Medical Society, D. Woodward, C. B. Chandler; Delegates to Massachusetts Medical Society, C. M. Rublee, Earl Cushman; Delegates to Maine Medical Society, W. F. Blanchford, N. H. Knowles.

H. G. SPAFFORD, Esq., has resigned the chair of Medical Jurisprudence in the Chicago Medical College, and Dr. M. O. Heydock, of Chicago, has been appointed as his successor.

DR. G. W. NORRIS has tendered his resignation as one of the surgeons of the Pennsylvania Hospital, a post which he has occupied for twenty-seven years.

VITAL STATISTICS OF BOSTON.
FOR THE WEEK ENDING SATURDAY, NOVEMBER 28th, 1863.
DEATHS.

		Males.	Females.	Total.
Deaths during the week	- - - - -	47	44	91
Ave. mortality of corresponding weeks for ten years, 1853—1863,	- - - - -	36.2	36.4	72.6
Average corrected to increased population	- - - - -	.00	.00	79.54
Death of persons above 90	- - - - -	0	0	0

Mortality from Prevailing Diseases.

Phthisis.	Croup.	Scar. Fev.	Pneumon.	Variola.	Dysentery.	Typ. Fever.	Chol. Infan.
8	7	2	6	1	1	1	0

NOTICE.—Subscribers in New England who have not paid their subscriptions for the current year, will receive their bills in the present issue of the *JOURNAL*; and those out of New England will receive theirs next week. Last December a more than ordinary promptness was shown by subscribers in responding to this annual call, and it is trusted that the same early attention will be given to it the present year. Some accounts of long standing still remain unsettled on our books, which is hoped will also be promptly attended to.

BOOKS RECEIVED.—Outlines of the Chief Camp Diseases of the United States Armies as observed during the present War. A Practical Contribution to Military Medicine. By Joseph Janvier Woodward, M.D., Asst. Surgeon U.S.A., Member of the Academy of Natural Sciences of Philadelphia, &c. Philadelphia: J. B. Lippincott & Co. 1863.

MARRIED.—In Cambridge, Dr. Forest Safford, of Belmont, to Miss Mary A. Smith, of C.—In Bangor, Me., Nov. 19th, Dr. A. D. Crabtree, of Hartford, Conn., to Miss Annie E. M. Kenney, of Bangor.

DIED.—In South Abington, Nov. 19th, Dr. C. H. Haskell, son of Dr. Joseph Haskell, of Rochester, aged 30 years.

DEATHS IN BOSTON for the week ending Saturday noon, Nov. 28th, 91. Males, 47—Females, 44.—Accident, 4—apoplexy, 1—induration of the bowels, 1—congestion of the brain, 1—disease of the brain, 2—bronchitis, 4—cancer, 3—choked (by a piece of meat), 1—consumption, 8—convulsions, 2—croup, 7—debility, 2—diphtheria, 5—dropsy, 4—drowned, 2—dysentery, 1—crysipelas, 1—scarlet fever, 2—typhoid fever, 1—gastritis, 1—hemorrhage (of umbilicus), 1—disease of the heart, 6—malformation of the heart, 1—infantile disease, 3—intemperance, 1—congestion of the lungs, 1—induration of the lungs, 6—marasmus, 1—old age, 5—paralysis, 1—pleurisy, 2—premature birth, 2—smallpox, 1—tonsillitis, 1—tumor, 1—unknown, 5.

Under 5 years of age, 34—between 5 and 20 years, 5—between 20 and 40 years, 13—between 40 and 60 years, 21—above 60 years, 18. Born in the United States, 54—Ireland, 30—other places, 7.